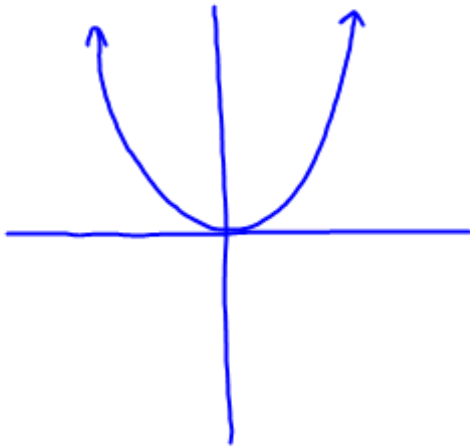
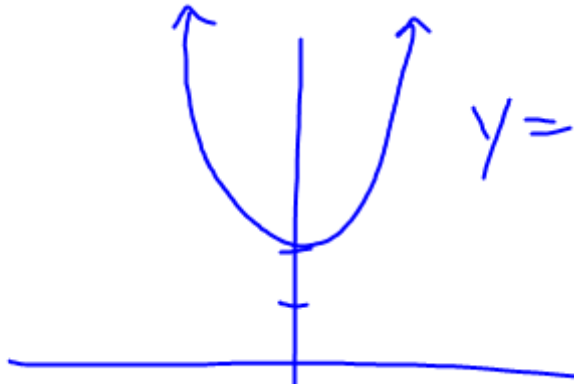


Vertical Shift

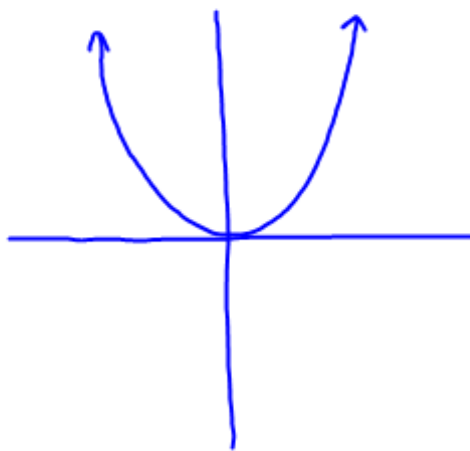
original $y = x^2$



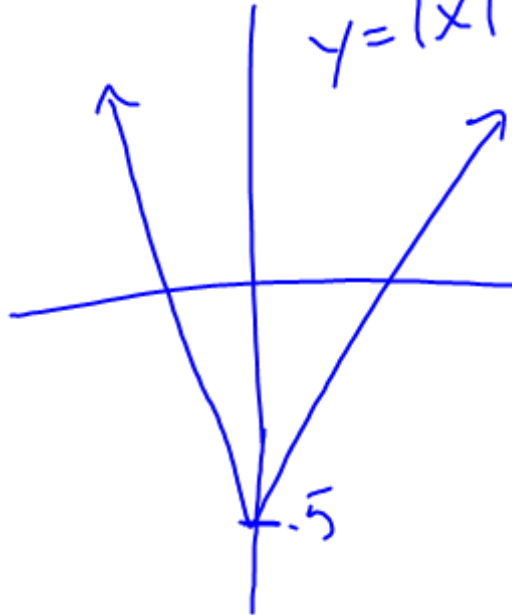
$$y = x^2 + 2$$



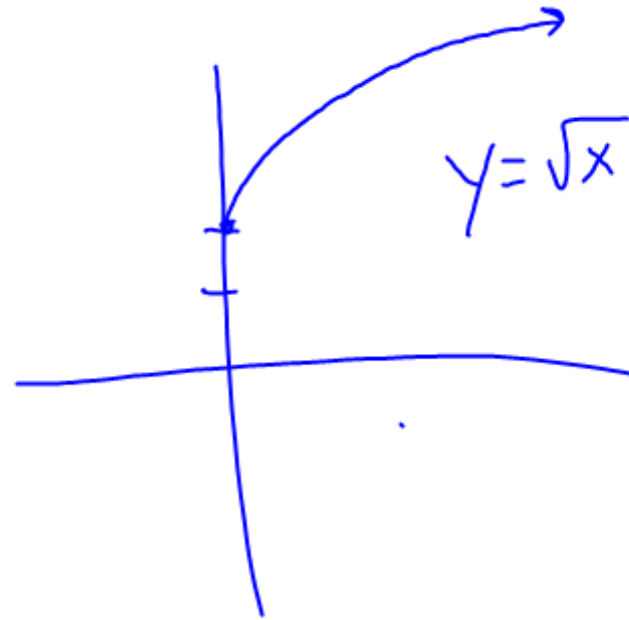
$$y = x^2 - 3$$



$$y = |x| - 5$$

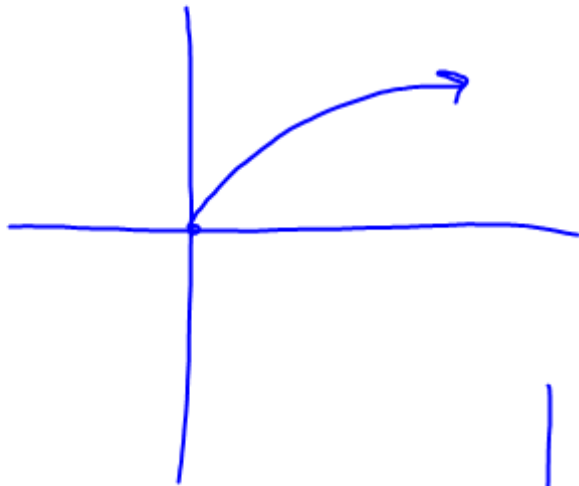


$$y = \sqrt{x} + 2$$

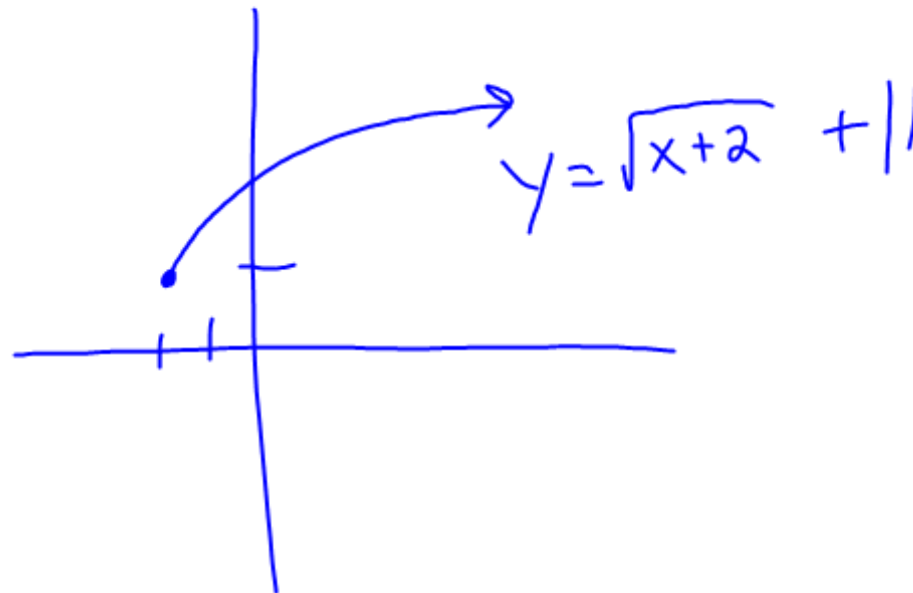
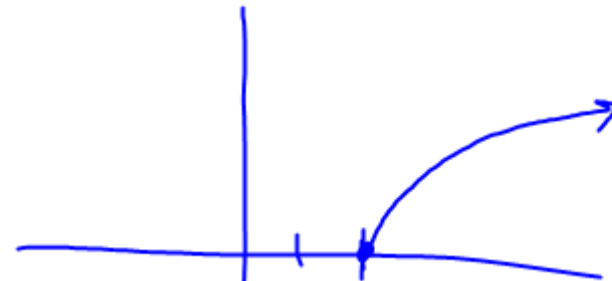


Horizontal Shift

original $y = \sqrt{x}$



$$y = \sqrt{x-2}$$



$$y = \sqrt{x+2} + 1$$

$$y = |x+4|$$

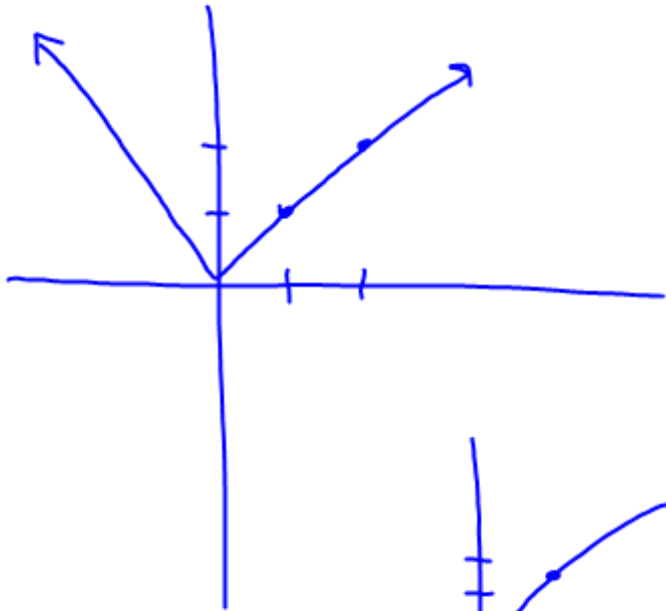
$$y = \sqrt{1-(x-2)^2}$$

$$y = \sqrt{1-x^2}$$

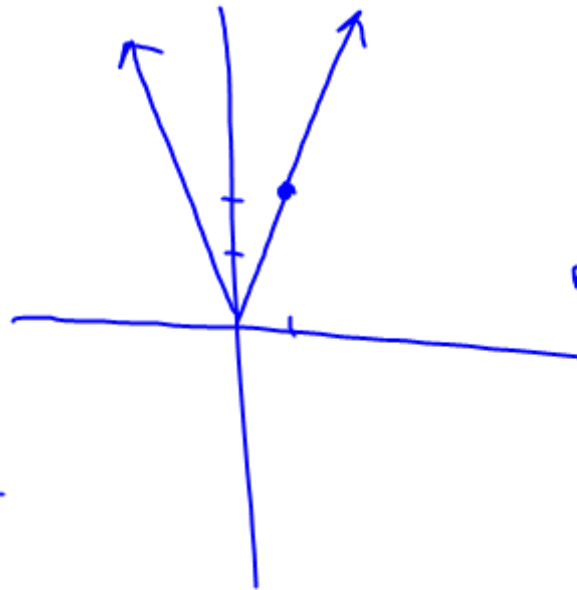
Stretch

original

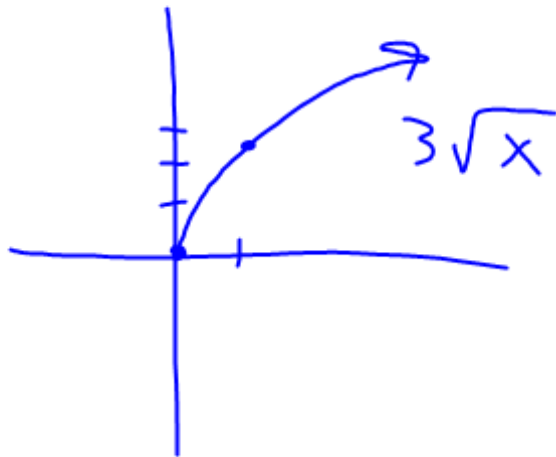
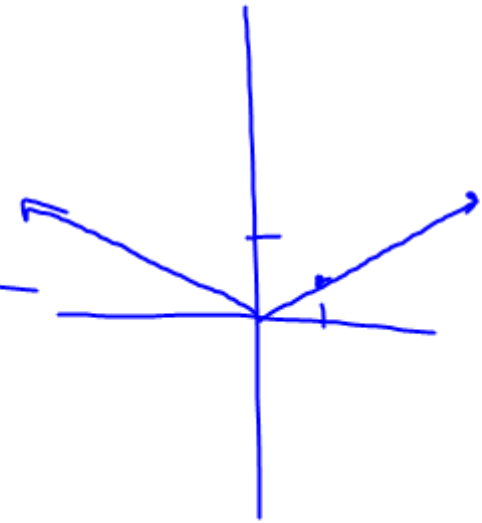
$$y = |x|$$



$$y = 2|x|$$



$$y = \frac{1}{2}|x|$$



$$y = a(x-h)^2 + k$$

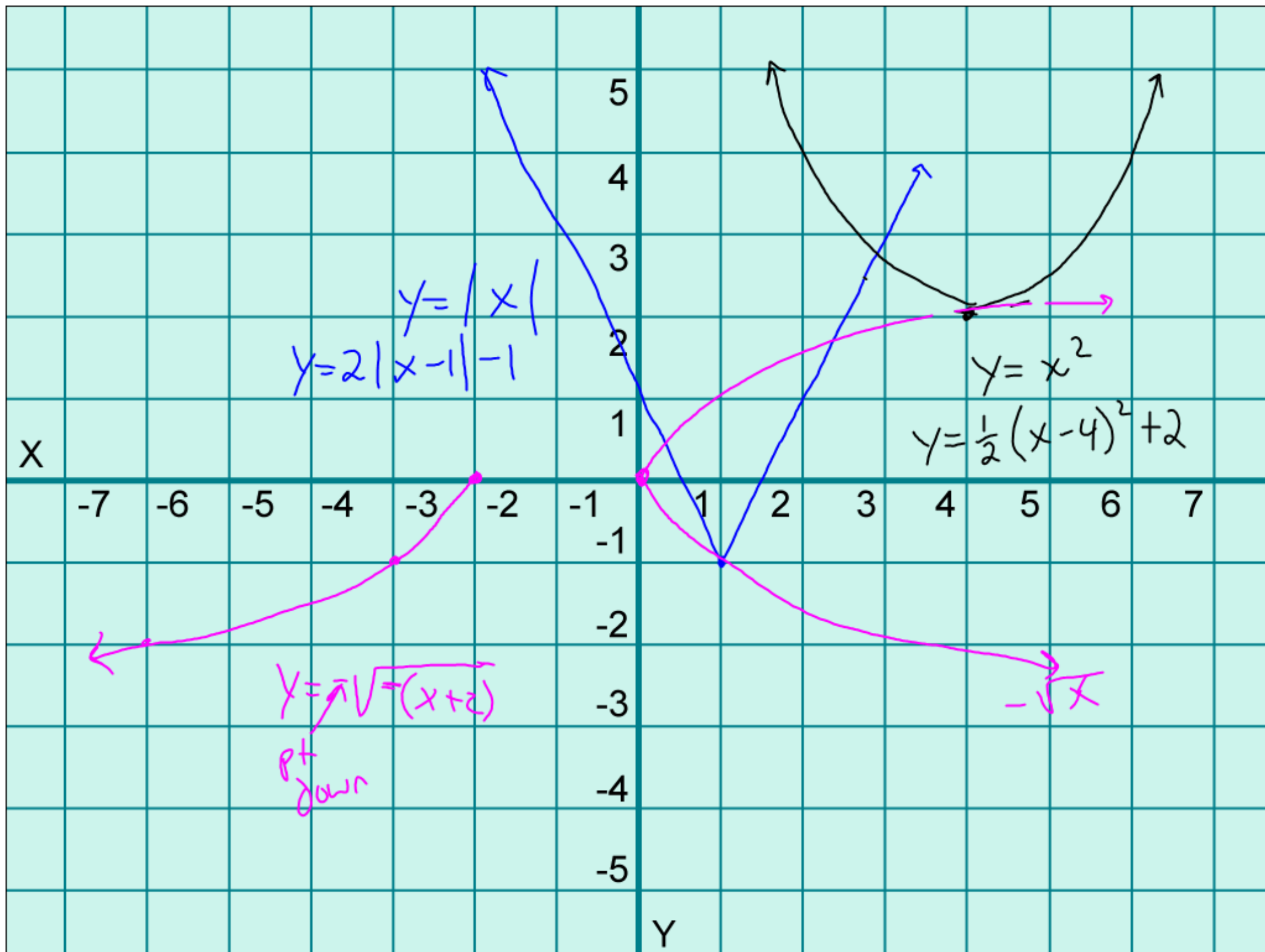
$$y = a|x-h| + k$$

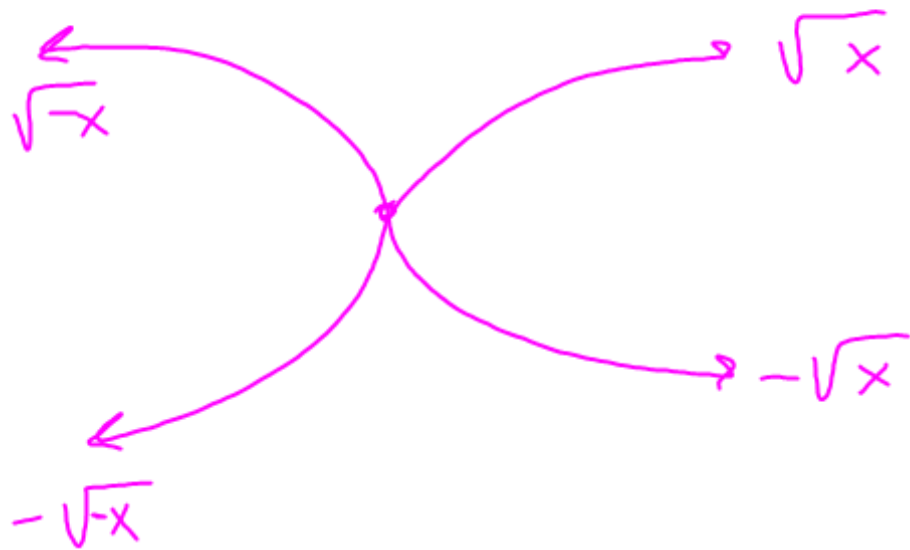
$$y = a\sqrt{x-h} + k$$

a - stretch or compression

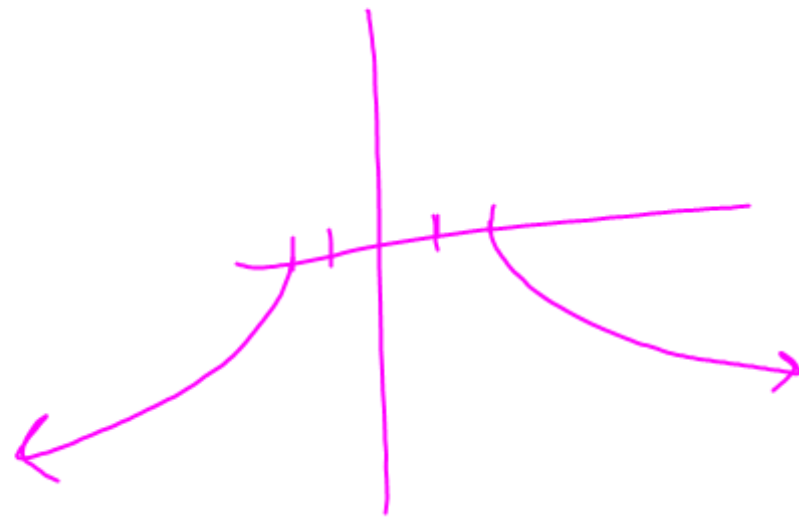
h - horizontal shift

k - vertical shift





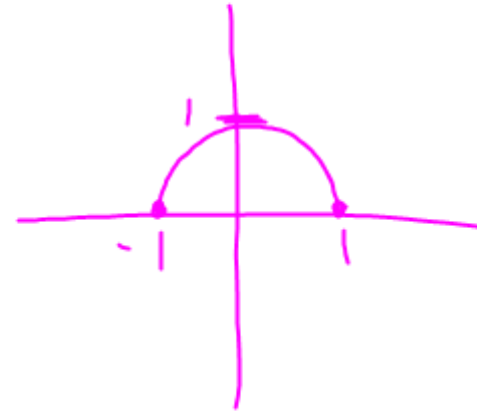
$$y = -1\sqrt{-(x+2)}$$



Semicircle

$$x^2 + y^2 = r^2 \text{ - circle}$$

$$y = \sqrt{1 - x^2}$$



Semicircle

$$x^2 + y^2 = 1$$

$$y^2 = 1 - x^2$$

$$y = \pm \sqrt{1 - x^2} \text{ - circle}$$

$$y = \sqrt{1 - x^2} \text{ - semicircle}$$

$$y = 2\sqrt{1-x^2} + 3$$

$a = \text{height}$

$h = \text{horiz. shift}$

$k = \text{vert. shift}$

$c = \text{horiz. radius}$

$$y = \sqrt{1-x^2} + 1$$

$$y = \sqrt{1 - \left(\frac{x}{3}\right)^2} + 2$$

$$y = \sqrt{1 - (x-3)^2}$$

X

-7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7

-1

-2

-3

-4

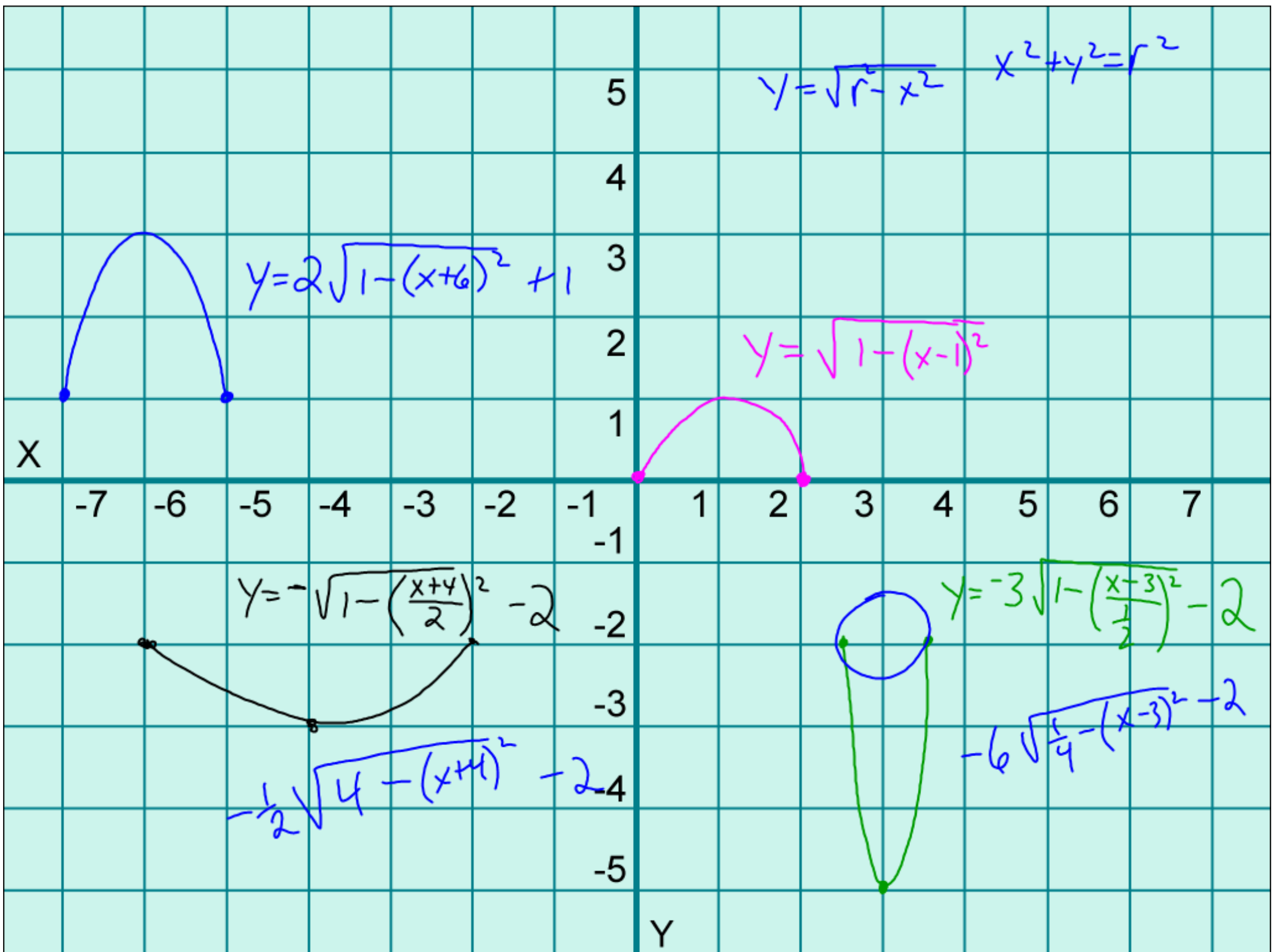
-5

Y

$$y = a\sqrt{1 - \left(\frac{x-h}{c}\right)^2} + k$$

$$y = -\sqrt{1-x^2}$$

$$y = \sqrt{1 - \left(\frac{x}{\frac{1}{2}}\right)^2} - 3$$

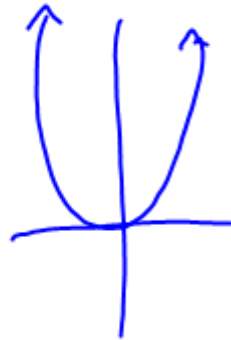


6.1

#2-6

$$X_1 = T$$

$$Y_1 = T^2$$



$$X_1 = T + 2$$

$$Y_1 = T^2$$

